Drinking Water Surveillance Program

WALPOLE ISLAND WATER TREATMENT PLANT

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WALPOLE ISLAND
WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1989

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

WALPOLE ISLAND WATER TREATMENT PLANT
1989 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The Walpole Island Water Treatment Plant is a conventional treatment package plant which treats water from the St. Clair River. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. This plant has a design capacity of 2.51 x 1000 m^3/day and serves a population of 1,900 (2,100 in the summer months).

Raw and Treated water samples were taken monthly and were analyzed for the presence of approximately 180 parameters. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organics (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polyaromatic Hydrocarbons, Specific Pesticides and Volatiles). Samples were analyzed for Specific Pesticides and Chlorophenols in June and November.

A summary of results is shown in Table A.

Inorganic and Physical parameters (Laboratory Chemistry, Field Chemistry and Metals) were all below applicable health related ODWOs.

Samples were analyzed monthly for the presence of approximately 110 Organics. Levels did not exceed health related guidelines.

During 1989, the DWSP sampling results indicated that the Walpole Island Water Treatment Plant produced good quality water at the plant.

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP

SUMMARY TABLE BY SCAN

SCAN	RAW TESTS	RAW POSITIVE	RAW %POSITIVE	TREATED TESTS	TREATED POSITIVE	TREATED %POSITIVE
BACTERIOLOGICAL	27	27	100	30	5	16
CHEMISTRY (FLD)	44	38	86	75	75	100
CHEMISTRY (LAB)	254	194	76	250	170	68
METALS	289	134	46	312	133	42
CHLOROAROMATICS	154	0	0	168	0	0
CHLOROPHENOLS	12	0	0	12	0	0
PAH	205	0	0	205	0	0
PESTICIDES & PCB	387	0	0	408	0	0
PHENOLICS	13	9	69	13	4	30
SPECIFIC PESTICIDES	62	0	0	63	0	0
VOLATILES	377	3	0	377	53	14
TOTAL	1824	405		1913	440	

NO KNOWN HEALTH RELATED GUIDELINES WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

WALPOLE ISLAND WATER TREATMENT PLANT
1989 ANNUAL REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

This plant is located on an Indian Reserve and therefore comes under federal jurisdiction. It is included on the DWSP because of its geographical location, situated on the St. Clair river downstream from Sarnia. The DWSP was initiated at the Walpole Island Water Treatment Plant in April 1986. Annual reports were published for 1986 (ISBN 0-7729-2568-2), 1987 and 1988 (ISSN 0839-8917).

This report contains information and results for 1989.

In order to accommodate the increasing number of plants on the DWSP and to facilitate the timely completion of the 1989 annual reports, plants with two or more years of published data will receive an abbreviated annual report. This report maintains the same general format as in previous years but does not include a comprehensive discussion of results. For more detail on the parameters analyzed and discussion of results, consult the 1987 and 1988 reports.

PLANT DESCRIPTION

The Walpole Island Water Treatment Plant is a "package" conventional treatment plant which treats water from the St. Clair river. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. Powdered Activated Carbon (PAC) is used to control taste and odour problems. A polyelectrolyte is used as a coagulation aid.

The treatment plant has a design capacity of 2.5 x 1000 m^3/day and flows on the day of sampling ranging from 0.3 x 1000 m^3/day to 0.5 x 1000 m^3/day. This plant serves a population of 1900 people, which rises to about 2,100 during the summer months.

The plant location is shown in Figure 1. Plant process details are shown in Figure 2. General plant information is presented in Table 2.

SAMPLING AND ANALYSIS

Plant operating personnel perform analyses on parameters for process control (Table 1).

Water at the Walpole Island Water Treatment plant was sampled for the presence of approximately 180 parameters monthly in 1989. Samples were analyzed for Specific Pesticides and Chlorophenols in

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

WALPOLE ISLAND WATER TREATMENT PLANT

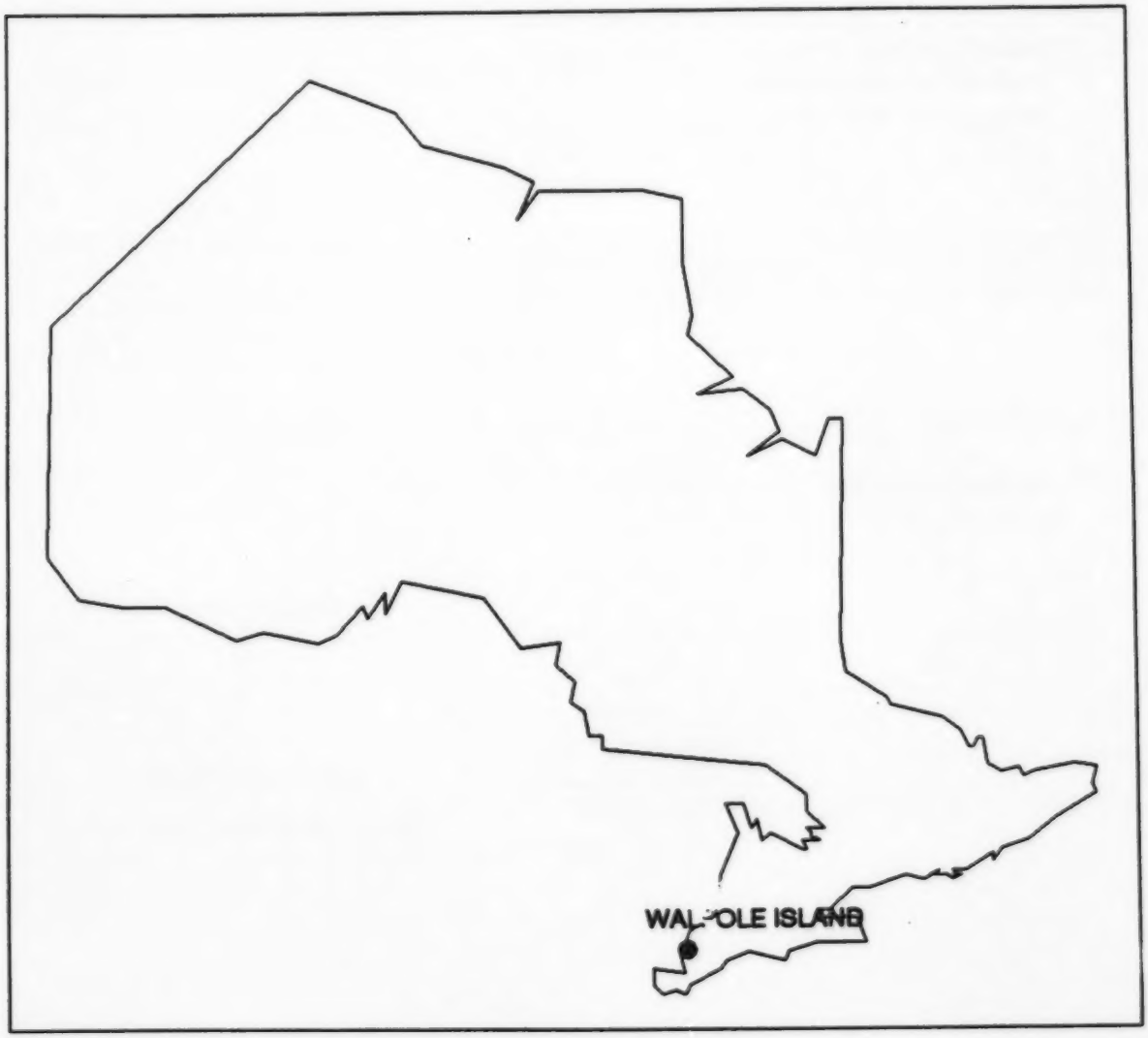

FIGURE 2

WALPOLE ISLAND WATER TREATMENT PLANT

SCHEMATIC

CHARACTERISTICS

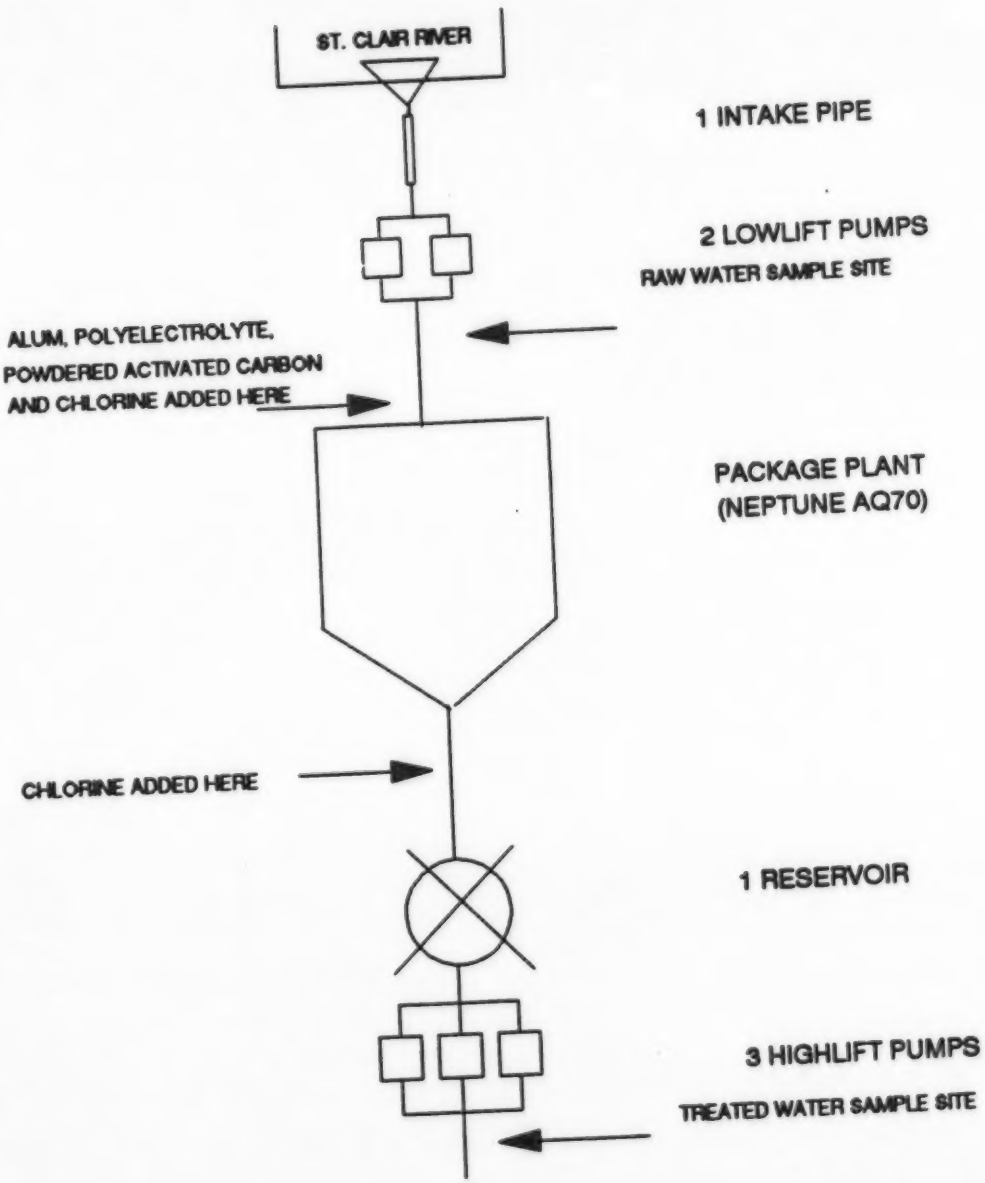

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

IN-PLANT MONITORING WALPOLE ISLAND WTP 1989

PARAMETER	LOCATION	FREQUENCY
Chlorine residual-free	Reservoir entrance	2 times/day
	Reservoir exit	2 times/day
total	Reservoir entrance	2 times/day
	Reservoir exit	2 times/day
pH	Raw water	weekly
	Reservoir exit	weekly
Turbidity	Raw water	2 times/day
	Reservoir entrance	2 times/day
	Reservoir exit	2 times/day

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

WALPOLE ISLAND WATER TREATMENT PLANT

LOCATION:	WALPOLE ISLAND, ONTARIO N8A 4K9 (519-627-1426)
SOURCE:	RAW WATER SOURCE - ST. CLAIR RIVER
DESIGN CAPACITY:	2.5 (1000 M^3/DAY)
OPERATION:	FEDERAL GOVERNMENT
PLANT SUPERINTENDENT:	J. TOOSHKENIG
MINISTRY REGION:	SOUTHWESTERN
DISTRICT OFFICER:	O. WIGLE

MUNICIPALITY SERVED	POPULATION
WALPOLE ISLAND	1,900
(SUMMER MONTHS)	2,100

June and November only. Laboratory analysis was conducted at the Ministry of the Environment facilities in Rexdale, Ontario.

RESULTS

Field chemistry measurements were recorded on the day of sampling and were entered on the DWSP database as submitted by plant personnel.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analyzed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 lists all parameters analyzed on the DWSP.

Associated guidelines and detection limits are also supplied on tables 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters. These are currently under review. When an ODWO is not available, guidelines/limits from other agencies are consulted. The Parameters Listing System (PALIS), recently published (ISBN 0-7729-4461-X) by the MOE, catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Many of the compounds detected are naturally occurring or are treatment by-products.

IN THIS REPORT, DISCUSSION IS LIMITED TO THE TREATED AND DISTRIBUTED WATER AND ADDRESSES ONLY THOSE PARAMETERS WITH CONCENTRATIONS ABOVE GUIDELINE VALUES AND ORGANIC PARAMETERS WITH

POSITIVE RESULTS.

Results of the treated water indicate that no health related guideline was exceeded during 1989.

Inorganic and Physical Parameters

Hardness

The ODWOs indicate that a hardness level of between 80 and 100 mg/L, as calcium carbonate for domestic waters, provides an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and would possess a tendency to form scale deposits and result in excessive soap consumption.

Aluminum

Aluminum values exceeded the ODWO operational guideline of 100 µg/L in four treated water samples to a high of 210 µg/L.

Organic Parameters

Benzene

Benzene was reported at 1.55 µg/L in the February treated water sample. Health and Welfare Canada has a Maximum Acceptable Concentration (MAC) for benzene in drinking water of 5.0 µg/L.

Trihalomethanes

Trihalomethanes (THMs) are acknowledged to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs. All total THM occurrences, ranging from 16.5 µg/L to 51.5 µg/L, were well below the ODWO of 350 µg/L. THMs were detected at trace levels in one raw water sample.

CONCLUSIONS

No health related water quality guidelines were exceeded.

The results listed in this report for 1989 are consistent with results reported for previous years.

The treated water leaving the plant was of good quality.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP SAMPLE DAY CONDITIONS FOR 1989

	SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)				
			COAGULATION	TASTE & ODOUR	COAGULATION AID	PRE-CHLORINATION	POST-CHLORINATION
			ALUM DRY	ACTIVATED CARBON POWDER	POLYELECTROLYTE	CHLORINE	CHLORINE
DATE	DELAY* TIME(HRS)	FLOW (1000M3)					
JAN 03	48.7	.4	7.50	10.00	.25	.80	1.00
JAN 04	37.9	.5	7.50	5.00	.20	1.00	1.00
FEB 07	52.3	.3	5.00	5.00	.20	1.00	1.00
FEB 25	46.0	.4	10.00	10.00	.25	1.00	1.00
MAR 07	48.3	.4	7.50	10.00	.25	1.00	1.00
APR 04	.4	.4	5.00	10.00	.15	1.00	1.00
MAY 02	47.4	.4	6.00	10.00	.15	1.00	1.00
JUN 06	50.8	.3	7.50	10.00	.25	1.00	1.00
JUL 05	37.7	.5	6.00	10.00	.25	1.00	1.00
AUG 09	.4	.4	6.00	8.00	.25	1.00	1.00
SEP 06	.3	.5	6.00	10.00	.25	1.00	1.00
OCT 02	48.0	.4	10.00	10.00	.25	1.00	1.00
NOV 07	49.0	.4	7.50	10.00	.25	.80	.80
DEC 05	45.0	.4	10.00	10.00	.25	.80	1.00

* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	9	9	0	.	.	.
	STANDRD PLATE CNT MF	.	.	.	10	3	0
	TOTAL COLIFORM MF	9	9	0	10	0	0
	T COLIFORM BCKGRD MF	9	9	0	10	2	0
*TOTAL SCAN BACTERIOLOGICAL		27	27	0	30	5	0
*TOTAL GROUP BACTERIOLOGICAL		27	27	0	30	5	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	2	0	0	10	10	0
	FLD CHLORINE FREE	2	0	0	13	13	0
	FLD CHLORINE (TOTAL)	2	0	0	13	13	0
	FLD PH	13	13	0	13	13	0
	FLD TEMPERATURE	12	12	0	13	13	0
	FLD TURBIDITY	13	13	0	13	13	0
*TOTAL SCAN CHEMISTRY (FLD)		44	38	0	75	75	0
CHEMISTRY (LAB)	ALKALINITY	12	12	0	12	12	0
	CALCIUM	12	12	0	12	12	0
	CYANIDE	13	0	0	13	0	0
	CHLORIDE	12	12	0	12	12	0
	COLOUR	12	0	12	12	0	6
	CONDUCTIVITY	12	12	0	12	12	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHEMISTRY (LAB)	FLUORIDE	12	12	0	12	11	1
	HARDNESS	12	12	0	12	12	0
	IONCAL	13	12	0	13	12	0
	LANGELIERS INDEX	12	12	0	8	8	0
	MAGNESIUM	12	12	0	12	12	0
	SODIUM	12	12	0	12	12	0
	AMMONIUM TOTAL	12	9	3	12	0	8
	NITRITE	12	3	9	12	0	7
	TOTAL NITRATES	12	12	0	12	12	0
	NITROGEN TOT KJELD	12	12	0	12	9	3
	PH	12	12	0	12	12	0
	PHOSPHORUS FIL REACT	12	1	5	12	0	2
	PHOSPHORUS TOTAL	12	1	10	12	0	6
	SULPHATE	12	12	0	12	12	0
	TURBIDITY	12	12	0	12	10	2
*TOTAL SCAN CHEMISTRY (LAB)		254	194	39	250	170	35
METALS	SILVER	12	0	0	13	1	3
	ALUMINUM	12	12	0	13	13	0
	ARSENIC	12	3	9	13	1	12
	BARIUM	12	12	0	13	13	0
	BORON	12	5	7	13	8	5
	BERYLLIUM	12	0	6	13	0	4

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
METALS	CADMIUM	12	0	3	13	0	3
	COBALT	12	0	12	13	0	13
	CHROMIUM	12	6	5	13	7	6
	COPPER	12	6	6	13	12	1
	IRON	12	4	8	13	0	6
	MERCURY	13	1	2	13	0	2
	MANGANESE	12	12	0	13	12	1
	MOLYBDENUM	12	9	3	13	9	4
	NICKEL	12	0	10	13	0	11
	LEAD	12	9	3	13	5	8
	ANTIMONY	12	11	1	13	12	1
	SELENIUM	12	0	9	13	0	11
	STRONTIUM	12	12	0	13	13	0
	TITANIUM	12	11	1	13	12	1
	THALLIUM	12	0	5	13	0	4
	URANIUM	12	9	3	13	2	11
	VANADIUM	12	0	12	13	0	13
	ZINC	12	12	0	13	13	0
*TOTAL SCAN METALS		289	134	105	312	133	120
*TOTAL GROUP INORGANIC & PHYSICAL		587	366	144	637	378	155
CHLOROAROMATICS	HEXACHLOROBUTADIENE	11	0	0	12	0	1
	123 TRICHLOROBENZENE	11	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
CHLOROAROMATICS	1234 T-CHLOROBENZENE	11	0	0	12	0	0
	1235 T-CHLOROBENZENE	11	0	0	12	0	0
	124 TRICHLOROBENZENE	11	0	0	12	0	0
	1245 T-CHLOROBENZENE	11	0	0	12	0	0
	135 TRICHLOROBENZENE	11	0	0	12	0	0
	HCB	11	0	0	12	0	0
	HEXACHLOROETHANE	11	0	0	12	0	0
	OCTACHLOROSTYRENE	11	0	0	12	0	0
	PENTACHLOROBENZENE	11	0	0	12	0	0
	236 TRICHLOROTOLUENE	11	0	0	12	0	0
	245 TRICHLOROTOLUENE	11	0	0	12	0	0
	26A TRICHLOROTOLUENE	11	0	0	12	0	0
*TOTAL SCAN CHLOROAROMATICS		154	0	0	168	0	1
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	2	0	0
	2345 T-CHLOROPHENOL	2	0	0	2	0	0
	2356 T-CHLOROPHENOL	2	0	0	2	0	0
	245-TRICHLOROPHENOL	2	0	0	2	0	0
	246-TRICHLOROPHENOL	2	0	0	2	0	0
	PENTACHLOROPHENOL	2	0	0	2	0	0
*TOTAL SCAN CHLOROPHENOLS		12	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PAH	PHENANTHRENE	13	0	0	13	0	0
	ANTHRACENE	13	0	0	13	0	0
	FLUORANTHENE	13	0	0	13	0	0
	PYRENE	13	0	0	13	0	0
	BENZO(A)ANTHRACENE	13	0	0	13	0	0
	CHRYSENE	13	0	0	13	0	0
	DIMETH. BENZ(A)ANTHR	4	0	0	4	0	0
	BENZO(E) PYRENE	13	0	0	13	0	0
	BENZO(B) FLUORANTHEN	13	0	0	13	0	0
	PERYLENE	13	0	0	13	0	0
	BENZO(K) FLUORANTHEN	13	0	0	13	0	0
	BENZO(A) PYRENE	6	0	0	6	0	0
	BENZO(G,H,I) PERYLEN	13	0	0	13	0	0
	DIBENZO(A,H) ANTHRAC	13	0	0	13	0	0
	INDENO(1,2,3-C,D) PY	13	0	0	13	0	0
	BENZO(B) CHRYSENE	13	0	0	13	0	0
	CORONENE	13	0	0	13	0	0
*TOTAL SCAN PAH		205	0	0	205	0	0
PESTICIDES & PCB	ALDRIN	11	0	0	12	0	0
	ALPHA BHC	11	0	10	12	0	9
	BETA BHC	11	0	0	12	0	1
	LINDANE	11	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	ALPHA CHLORDANE	11	0	0	12	0	0
	GAMMA CHLORDANE	11	0	0	12	0	0
	DIELDRIN	11	0	0	12	0	0
	METHOXYCHLOR	11	0	0	12	0	0
	ENDOSULFAN 1	11	0	0	12	0	0
	ENDOSULFAN II	11	0	0	12	0	0
	ENDRIN	11	0	0	12	0	0
	ENDOSULFAN SULPHATE	11	0	0	12	0	0
	HEPTACHLOR EPOXIDE	11	0	0	12	0	0
	HEPTACHLOR	11	0	0	12	0	0
	MIREX	11	0	0	12	0	0
	OXYCHLORDANE	11	0	0	12	0	0
	OPDDT	11	0	0	12	0	0
	PCB	11	0	0	12	0	0
	DDD	11	0	0	12	0	0
	PPDDE	11	0	0	12	0	0
	PPDDT	11	0	0	12	0	0
	AMETRINE	12	0	0	12	0	0
	ATRAZINE	12	0	0	12	0	0
	ATRATONE	12	0	0	12	0	0
	CYANAZINE (BLADEX)	12	0	0	12	0	0
	D-ETHYL ATRAZINE	12	0	0	12	0	0
	D-ETHYL SIMAZINE	12	0	0	12	0	0
	PROMETONE	12	0	0	12	0	0
	PROPAZINE	12	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	PROMETRYNE	12	0	0	12	0	0
	METRIBUZIN (SENCOR)	12	0	0	12	0	0
	SIMAZINE	12	0	0	12	0	0
	ALACHLOR (LASSO)	12	0	0	12	0	0
	METOLACHLOR	12	0	0	12	0	0
*TOTAL SCAN PESTICIDES & PCB		387	0	10	408	0	10
PHENOLICS	PHENOLICS	13	9	3	13	4	7
*TOTAL SCAN PHENOLICS		13	9	3	13	4	7
SPECIFIC PESTICIDES	TOXAPHENE	9	0	0	10	0	0
	2,4,5-T	2	0	0	2	0	0
	2,4-D	2	0	0	2	0	0
	2,4-DB	2	0	0	2	0	0
	2,4 D PROPIONIC ACID	2	0	0	2	0	0
	DICAMBA	2	0	0	2	0	0
	PICHLORAM	0	0	0	0	0	0
	SILVEX	2	0	0	2	0	0
	DIAZINON	2	0	0	2	0	0
	DICHLOROVOS	2	0	0	2	0	0
	CHLORPYRIFOS	2	0	0	2	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
SPECIFIC PESTICIDES	ETHION	2	0	0	2	0	0
	AZINPHOS-METHYL	0	0	0	0	0	0
	MALATHION	2	0	0	2	0	0
	MEVINPHOS	2	0	0	2	0	0
	METHYL PARATHION	2	0	0	2	0	0
	METHYLTRITHION	2	0	0	2	0	0
	PARATHION	2	0	0	2	0	0
	PHORATE	2	0	0	2	0	0
	RELDAN	2	0	0	2	0	0
	RONNEL	2	0	0	2	0	0
	AMINOCARB	1	0	0	1	0	0
	BENOMYL	1	0	0	1	0	0
	BUX	0	0	0	0	0	0
	CARBOFURAN	2	0	0	2	0	0
	CICP	2	0	0	2	0	0
	DIALLATE	2	0	0	2	0	0
	EPTAM	1	0	0	1	0	0
	IPC	2	0	0	2	0	0
	PROPOXUR	2	0	0	2	0	0
	CARBARYL	2	0	0	2	0	0
	BUTYLATE	2	0	0	2	0	0
*TOTAL SCAN SPECIFIC PESTICIDES		62	0	0	63	0	0
VOLATILES	BENZENE	13	1	7	13	1	12

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	TOLUENE	13	0	5	13	0	10
	ETHYLBENZENE	13	0	5	13	0	8
	P-XYLENE	13	0	0	13	0	0
	M-XYLENE	13	0	3	13	0	5
	O-XYLENE	13	0	6	13	0	7
	STYRENE	13	0	7	13	0	2
	1,1 DICHLOROETHYLENE	13	0	0	13	0	0
	METHYLENE CHLORIDE	13	0	0	13	0	0
	T1,2DICHLOROETHYLENE	13	0	0	13	0	0
	1,1 DICHLOROETHANE	13	0	0	13	0	0
	CHLOROFORM	13	2	1	13	13	0
	111, TRICHLOROETHANE	13	0	2	13	0	0
	1,2 DICHLOROETHANE	13	0	0	13	0	0
	CARBON TETRACHLORIDE	13	0	0	13	0	0
	1,2 DICHLOROPROPANE	13	0	0	13	0	0
	TRICHLOROETHYLENE	13	0	0	13	0	0
	DICHLOROBROMOMETHANE	13	0	1	13	13	0
	112 TRICHLOROETHANE	13	0	0	13	0	0
	CHLORODIBROMOMETHANE	13	0	0	13	13	0
	T-CHLOROETHYLENE	13	0	1	13	0	4
	BROMOFORM	13	0	0	13	0	13
	1122 T-CHLOROETHANE	13	0	0	13	0	0
	CHLOROBENZENE	13	0	0	13	0	0
	1,4 DICHLOROBENZENE	13	0	0	13	0	1
	1,3 DICHLOROBENZENE	13	0	0	13	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	1,2 DICHLOROBENZENE	13	0	0	13	0	1
	ETHLYENE DIBROMIDE	13	0	0	13	0	0
	TOTL TRIHALOMETHANES	13	0	1	13	13	0
*TOTAL SCAN VOLATILES		377	3	39	377	53	63
*TOTAL GROUP ORGANIC		1210	12	52	1246	57	81
TOTAL		1824	405	196	1913	440	236

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours
2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, a total)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria
5. Maximum Contaminant Level Goal (MCLG)

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:
1. Exclude the low-level data because of this uncertainty factor. Studies of long-term environmental trends and modelling may however, be adversely affected by the exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported with the code "<T". Results qualified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. The average of such data however, is still only an estimate of the amount of substance present subject to the possible biases of the method used.

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!IV	No Data: Inverted Septum
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded

!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours

T# (T06) Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
BACTERIOLOGICAL		DET'N LIMIT = 0	GUIDELINE = 0 (A1)
FECAL COLIFORM MF (CT/100ML)			
JAN	268 T48	.	
FEB	150 >	.	
	14 T48	.	
MAR	185 A>	.	
APR	252	.	
MAY	56	.	
JUN	6	.	
JUL	60	.	
AUG	92	.	
STANDRD PLATE CNT MF ( )		DET'N LIMIT = 0	GUIDELINE = 500/ML (A1)
JAN	.	0 <=>	
FEB	.	6 <=>	
	.	5 <=>	
MAR	.	2 <=>	
APR	.	11 T48	
MAY	.	3 <=>	
JUN	.	0 <=>	
AUG	.	230	
SEP	.	310	
NOV	.	3 <=>	
TOTAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0	GUIDELINE = 5/100ML(A1)
JAN	1600 T48	0 T24	
FEB	1000	0 T24	
	280 T48	0 T48	
MAR	1740 A3C	0 T48	
APR	2120 A3C	0 T48	
MAY	3000	0	
JUN	240 A3C	0	
JUL	1000	.	
AUG	1500	0	
SEP	.	0	
NOV	.	0 A3C	
T COLIFORM BCKGRD MF (CT/100ML)		DET'N LIMIT = 0	GUIDELINE = N/A
JAN	10500 T48	0 T24	
FEB	3867	0 T24	
	930 T48	0 T48	
MAR	7400 A3C	0 T48	
APR	6800 A3C	0 T48	
MAY	5600	1	
JUN	4800 A3C	0	
JUL	4300	.	
AUG	17000	0	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
SEP	.	0	
NOV	.	2400 >	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
CHEMISTRY (FLD)			
FLD CHLORINE (COMB) ( )		DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.	.100	
FEB	.	1.000	
	.	.400	
MAY	.	.900	
JUN	.	.100	
JUL	.	.100	
AUG	.	.100	
SEP	.000	.900	
OCT	.000	.100	
DEC	.	.200	
FLD CHLORINE FREE ( )		DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.	1.000	
FEB	.	.800	
	.	.400	
MAR	.	.700	
APR	.	.800	
MAY	.	.700	
JUN	.	.800	
JUL	.	.700	
AUG	.	1.000	
SEP	.000	.700	
OCT	.000	1.000	
NOV	.	.800	
DEC	.	.600	
FLD CHLORINE (TOTAL) ( )		DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.	1.100	
FEB	.	.200	
	.	.800	
MAR	.	.900	
APR	.	.800	
MAY	.	1.600	
JUN	.	.900	
JUL	.	.800	
AUG	.	1.100	
SEP	.000	.200	
OCT	.000	1.100	
NOV	.	.900	
DEC	.	.800	
FLD PH (DIMNSLESS)		DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
JAN	8.000	7.600	
FEB	7.800	7.400	
	7.700	7.300	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
MAR	8.000	7.500	
APR	8.000	7.300	
MAY	8.200	7.400	
JUN	8.200	7.400	
JUL	8.400	7.600	
AUG	8.500	7.500	
SEP	8.500	7.500	
OCT	8.500	7.600	
NOV	8.500	7.600	
DEC	8.400	7.100	
FLD TEMPERATURE (DEG.C)		DET'N LIMIT = N/A	GUIDELINE = 15 (A1)
JAN	2.700	3.000	
FEB	1.000	1.700	
	.	.500	
MAR	.700	1.700	
APR	2.200	4.000	
MAY	7.200	7.500	
JUN	12.000	12.200	
JUL	17.500	18.000	
AUG	21.200	22.200	
SEP	20.700	21.200	
OCT	16.500	16.500	
NOV	10.500	11.000	
DEC	3.500	4.700	
FLD TURBIDITY (FTU)		DET'N LIMIT = N/A	GUIDELINE = 1.0 (A1)
JAN	1.500	.090	
FEB	2.900	.060	
	2.200	.220	
MAR	2.500	.100	
APR	3.100	.110	
MAY	2.600	.060	
JUN	3.100	.900	
JUL	2.300	1.100	
AUG	4.300	.320	
SEP	3.200	.150	
OCT	10.700	.180	
NOV	3.700	.160	
DEC	6.500	.420	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
CHEMISTRY (LAB)			
ALKALINITY (MG/L)			DET'N LIMIT = .200 GUIDELINE = 30-500 (A4)
JAN	85.500	77.000	
FEB	85.800	78.500	
	86.700	75.400	
MAR	87.000	78.500	
APR	81.800	74.400	
MAY	84.300	79.000	
JUN	84.500	76.300	
JUL	85.700	78.900	
AUG	86.400	80.000	
SEP	85.200	78.000	
OCT	ISH	ISH	
NOV	86.500	81.200	
DEC	85.300	75.600	
CALCIUM (MG/L)			DET'N LIMIT = .100 GUIDELINE = 100 (F2)
JAN	29.400	29.700	
FEB	27.400	28.200	
	30.000	30.200	
MAR	29.600	29.600	
APR	28.200	29.200	
MAY	31.600	32.600	
JUN	28.600	29.000	
JUL	30.000	29.400	
AUG	29.400	30.400	
SEP	26.800	27.800	
OCT	ISH	ISH	
NOV	27.800	28.000	
DEC	31.600	32.000	
CHLORIDE (MG/L)			DET'N LIMIT = .200 GUIDELINE = 250 (A3)
JAN	18.000	20.000	
FEB	9.400	10.300	
	10.400	10.000	
MAR	10.900	11.100	
APR	9.700	10.500	
MAY	9.600	10.200	
JUN	9.600	9.900	
JUL	9.200	9.700	
AUG	9.200	9.700	
SEP	9.000	9.700	
NOV	9.300	9.700	
DEC	10.900	11.800	
COLOUR (HZU)			DET'N LIMIT = .5 GUIDELINE = 5.0 (A3)
JAN	1.000 <T	.500 <T	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
FEB	.500 <T	BDL	
	1.000 <T	BDL	
MAR	.500 <T	BDL	
APR	1.000 <T	BDL	
MAY	.500 <T	.500 <T	
JUN	1.000 <T	.500 <T	
JUL	1.000 <T	1.000 <T	
AUG	1.000 <T	.500 <T	
SEP	1.000 <T	1.500 <T	
OCT	ISM	ISM	
NOV	.500 <T	BDL	
DEC	1.000 <T	BDL	
CONDUCTIVITY (UMHO/CM)		DET'N LIMIT = 1	GUIDELINE = 400 (F2)
JAN	231	239	
FEB	229	236	
	230	238	
MAR	240	243	
APR	230	237	
MAY	231	236	
JUN	231	237	
JUL	226	233	
AUG	229	234	
SEP	227	232	
OCT	ISM	ISM	
NOV	231	237	
DEC	233	241	
FLUORIDE (MG/L)		DET'N LIMIT = .01	GUIDELINE = 2.400 (A1)
JAN	.060	.040 <T	
FEB	.080	.060	
	.080	.060	
MAR	.100	.080	
APR	.080	.060	
MAY	.100	.080	
JUN	.100	.080	
JUL	.080	.140	
AUG	.080	.080	
SEP	.080	.080	
OCT	ISM	ISM	
NOV	.080	.060	
DEC	.100	.080	
HARDNESS (MG/L)		DET'N LIMIT = .500	GUIDELINE = 80-100 (A4)
JAN	105.000	105.000	
FEB	100.000	103.000	
	106.000	107.000	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
MAR	104.000	103.000	
APR	102.000	104.000	
MAY	111.000	113.000	
JUN	103.000	105.000	
JUL	107.000	103.000	
AUG	105.000	108.000	
SEP	98.000	100.000	
OCT	ISM	ISM	
NOV	100.000	101.000	
DEC	112.000	113.000	

IONCAL (DMNSLESS) — DET'N LIMIT = N/A — GUIDELINE = N/A

JAN	8.444	9.070
FEB	2.877	1.976
	6.508	8.692
MAR	1.287	2.296
APR	3.764	5.446
MAY	8.499	8.742
JUN	1.865	1.532
JUL	3.712	.012
AUG	1.032	1.955
SEP	5.106	4.970
OCT	.000 NAF	.000 NAF
NOV	3.954	4.874
DEC	7.747	7.127

LANGELIERS INDEX (DMNSLESS) — DET'N LIMIT = N/A — GUIDELINE = N/A

JAN	.268	.064
FEB	.180	-.189
	.133	-.337
MAR	.195	-.051
APR	.151	.112
MAY	.253	.267
JUN	.191	.030
JUL	.070	-.257
AUG	.293	.263
SEP	.138	.144
NOV	.279	.192
DEC	.208	.108

MAGNESIUM (MG/L) — DET'N LIMIT = .050 — GUIDELINE = 30 (F2)

JAN	7.540	7.550
FEB	7.800	7.800
	7.600	7.700
MAR	7.300	7.100
APR	7.500	7.600
MAY	7.700	7.800

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
JUN	7.700	7.800	
JUL	7.700	7.200	
AUG	7.770	7.840	
SEP	7.600	7.500	
OCT	ISM	ISM	
NOV	7.500	7.600	
DEC	8.100	8.200	
SODIUM (MG/L)		DET'N LIMIT = .200	GUIDELINE = 200 (C3)
JAN	6.300	6.500	
FEB	5.200	5.600	
	6.000	6.400	
MAR	6.800	6.600	
APR	6.800	7.000	
MAY	6.000	6.200	
JUN	6.400	6.200	
JUL	6.200	5.800	
AUG	5.600	5.500	
SEP	5.400	5.400	
OCT	ISM	ISM	
NOV	6.200	6.000	
DEC	7.000	7.200	
AMMONIUM TOTAL (MG/L)		DET'N LIMIT = 0.002	GUIDELINE = .05 (F2)
JAN	.014	.006 <T	
FEB	.016	.006 <T	
	.004 <T	.002 <T	
MAR	.010	BDL	
APR	.020	.002 <T	
MAY	.016	.002 <T	
JUN	.018	BDL	
JUL	.018	BDL	
AUG	.006 <T	.002 <T	
SEP	.014	.004 <T	
OCT	ISM	ISM	
NOV	.016	.002 <T	
DEC	.002 <T	BDL	
NITRITE (MG/L)		DET'N LIMIT = 0.001	GUIDELINE = 1.000 (A1)
JAN	.003 <T	BDL	
FEB	.002 <T	BDL	
	.002 <T	BDL	
MAR	.005	.002 <T	
APR	.003 <T	.001 <T	
MAY	.004 <T	.002 <T	
JUN	.006	.002 <T	
JUL	.004 <T	.001 <T	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
AUG	.004 <T	.001 <T	
SEP	.005	.002 <T	
OCT	ISM	ISM	
NOV	.003 <T	BDL	
DEC	.002 <T	BDL	
TOTAL NITRATES (MG/L)		DET'N LIMIT = .020	GUIDELINE = 10.000 (A1)
JAN	.300	.300	
FEB	.340	.350	
	.320	.330	
MAR	.330	.340	
APR	.395	.375	
MAY	.350	.350	
JUN	.265	.290	
JUL	.300	.165	
AUG	.285	.305	
SEP	.275	.280	
OCT	ISM	ISM	
NOV	.275	.290	
DEC	.275	.270	
NITROGEN TOT KJELD (MG/L)		DET'N LIMIT = .020	GUIDELINE = N/A
JAN	.160	.090 <T	
FEB	.170	.090 <T	
	.190	.100	
MAR	.220	.110	
APR	.190	.120	
MAY	.170	.100	
JUN	.190	.110	
JUL	.180	.120	
AUG	.180	.110	
SEP	.170	.100	
OCT	ISM	ISM	
NOV	.140	.080 <T	
DEC	.210	.120	
PH (DIMNSLESS)		DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
JAN	8.280	8.120	
FEB	8.220	7.880	
	8.130	7.720	
MAR	8.200	8.000	
APR	8.200	8.190	
MAY	8.240	8.270	
JUN	8.220	8.100	
JUL	8.070	7.790	
AUG	8.300	8.290	
SEP	8.190	8.220	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
OCT	ISM	ISM	
NOV	8.310	8.250	
DEC	8.190	8.140	
PHOSPHORUS FIL REACT (MG/L)		DET'N LIMIT = .0005	GUIDELINE = N/A
JAN	BDL	BDL	
FEB	.001 <T	.000 <T	
	BDL	BDL	
MAR	.000 <T	BDL	
APR	.000 <T	BDL	
MAY	BDL	BDL	
JUN	BDL	BDL	
JUL	BDL	BDL	
AUG	.001 <T	BDL	
SEP	BDL	BDL	
OCT	ISM	ISM	
NOV	.000 <T	BDL	
DEC	.002	.001 <T	
PHOSPHORUS TOTAL (MG/L)		DET'N LIMIT = .002	GUIDELINE = .40 (F2)
JAN	.004 <T	BDL	
FEB	.007 <T	.002 <T	
	.006 <T	BDL	
MAR	.006 <T	BDL	
APR	.005 <T	BDL	
MAY	.006 <T	BDL	
JUN	.009 <T	.005 <T	
JUL	.008 <T	.003 <T	
AUG	.008 <T	.003 <T	
SEP	.006 <T	.002 <T	
OCT	ISM	ISM	
NOV	BDL	BDL	
DEC	.010	.002 <T	
SULPHATE (MG/L)		DET'N LIMIT = .200	GUIDELINE = 500. (A3)
JAN	15.490	22.930	
FEB	14.180	21.780	
	9.030	19.830	
MAR	16.030	23.790	
APR	14.380	21.740	
MAY	14.260	21.190	
JUN	15.260	23.880	
JUL	15.420	21.590	
AUG	15.280	22.070	
SEP	16.010	23.870	
OCT	ISM	ISM	
NOV	16.940	22.880	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
DEC	15.930	26.350	
TURBIDITY (FTU)		DET'N LIMIT = .02	GUIDELINE = 1.00 (A1)
JAN	.670	.220 <T	
FEB	1.100	.260	
	2.800	.700	
MAR	2.100	.360	
APR	1.510	.480	
MAY	2.200	.610	
JUN	1.930	.190 <T	
JUL	1.770	.350	
AUG	2.900	.320	
SEP	1.300	.230	
OCT	ISM	ISM	
NOV	2.200	.130	
DEC	6.800	.330	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
METALS		
SILVER (UG/L)		DET'N LIMIT = .020 GUIDELINE = 50. (A1)
JAN	BDL	BDL
FEB	BDL	BDL
	BDL	.530
MAR	BDL	.060 <T
APR	BDL	BDL
MAY	BDL	BDL
JUN	BDL	BDL
JUL	ISM	.110 <T
AUG	BDL	BDL
SEP	BDL	.060 <T
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL
ALUMINUM (UG/L)		DET'N LIMIT = .050 GUIDELINE = 100.(A4)
JAN	10.208	30.160
FEB	15.080	37.120
	22.040	26.680
MAR	26.680	33.640
APR	20.880	37.120
MAY	31.320	52.200
JUN	37.000	76.000
JUL	ISM	170.000
AUG	50.000	210.000
SEP	36.000	160.000
OCT	59.000	110.000
NOV	26.000	73.000
DEC	46.000	71.000
ARSENIC (UG/L)		DET'N LIMIT = 0.050 GUIDELINE = 50.0 (A1)
JAN	.730 <T	.270 <T
FEB	.430 <T	.270 <T
	1.300	1.100
MAR	.870 <T	.660 <T
APR	.670 <T	.600 <T
MAY	.700 <T	.560 <T
JUN	1.100	.880 <T
JUL	ISM	.780 <T
AUG	1.200	.790 <T
SEP	.970 <T	.810 <T
OCT	.710 <T	.470 <T
NOV	.460 <T	.290 <T
DEC	.600 <T	.330 <T
BARIUM (UG/L)		DET'N LIMIT = 0.020 GUIDELINE = 1000. (A1)
JAN	15.000	13.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

WATER TREATMENT PLANT — DISTRIBUTION SYSTEM .

	RAW	TREATED
FEB	15.000	14.000
	15.000	14.000
MAR	14.000	12.000
APR	14.000	13.000
MAY	14.000	13.000
JUN	15.000	15.000
JUL	ISH	15.000
AUG	15.000	15.000
SEP	15.000	14.000
OCT	16.000	16.000
NOV	13.000	13.000
DEC	15.000	14.000

DET'N LIMIT = 0.200 GUIDELINE = 5000. (A1)

BORON (UG/L)

JAN	47.000	16.000 <T
FEB	13.000 <T	13.000 <T
	66.000	72.000
MAR	63.000	33.000
APR	25.000	160.000
MAY	13.000 <T	15.000 <T
JUN	18.000 <T	21.000
JUL	ISH	31.000
AUG	15.000 <T	15.000 <T
SEP	29.000	23.000
OCT	19.000 <T	21.000
NOV	13.000 <T	12.000 <T
DEC	13.000 <T	21.000

DET'N LIMIT = 0.010 GUIDELINE = N/A

BERYLLIUM (UG/L)

JAN	.060 <T	BDL
FEB	.070 <T	BDL
	.140 <T	.160 <T
MAR	.110 <T	BDL
APR	BDL	.160 <T
MAY	BDL	BDL
JUN	.040 <T	.090 <T
JUL	ISH	.060 <T
AUG	BDL	BDL
SEP	.060 <T	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL

DET'N LIMIT = 0.050 GUIDELINE = 5.000 (A1)

CADMIUM (UG/L)

JAN	BDL	BDL
FEB	BDL	BDL
	.380 <T	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
COBALT (UG/L)		DET'N LIMIT = 0.020 GUIDELINE = N/A
MAR	BDL	BDL
APR	BDL	BDL
MAY	.070 <T	BDL
JUN	.170 <T	.200 <T
JUL	ISM	.090 <T
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	.060 <T
DEC	BDL	BDL
CHROMIUM (UG/L)		DET'N LIMIT = 0.100 GUIDELINE = 50. (A1)
JAN	.130 <T	.130 <T
FEB	.060 <T	.060 <T
	.200 <T	.240 <T
MAR	.110 <T	.050 <T
APR	.100 <T	.050 <T
MAY	.170 <T	.130 <T
JUN	.180 <T	.160 <T
JUL	ISM	.300 <T
AUG	.150 <T	.110 <T
SEP	.150 <T	.140 <T
OCT	.100 <T	.030 <T
NOV	.110 <T	.120 <T
DEC	.190 <T	.090 <T
COPPER (UG/L)		DET'N LIMIT = .100 GUIDELINE = 1000 (A3)
JAN	4.900	.310 <T
FEB	.320 <T	.370 <T
	6.100	6.500
MAR	7.600	3.200
APR	.670 <T	5.800
MAY	.260 <T	.350 <T
JUN	1.200	2.500
JUL	ISM	3.100
AUG	.820 <T	.530 <T
SEP	3.000	1.900
OCT	2.000	2.600
NOV	.210 <T	.240 <T
DEC	BDL	2.400 <T
JAN	.780 <T	3.100
FEB	1.000 <T	3.400
	2.300	1.500
MAR	1.000 <T	3.700
APR	.910 <T	3.100

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
IRON (UG/L)		DET'N LIMIT = 4.000 GUIDELINE = 300. (A3)
MAY	1.200	3.300
JUN	1.100	3.700
JUL	ISN	4.200
AUG	.740 <T	3.400
SEP	.980 <T	3.400
OCT	14.000	3.000
NOV	1.500	2.300
DEC	11.000	3.100 <T
IRON (UG/L)		DET'N LIMIT = 4.000 GUIDELINE = 300. (A3)
JAN	21.000 <T	14.000 <T
FEB	29.000 <T	6.500 <T
	34.000 <T	BDL
MAR	35.000 <T	11.000 <T
APR	22.000 <T	BDL
MAY	33.000 <T	BDL
JUN	45.000 <T	BDL
JUL	ISN	BDL
AUG	92.000	BDL
SEP	36.000 <T	BDL
OCT	110.000	6.600 <T
NOV	57.000	5.800 <T
DEC	78.000	6.100 <T
MERCURY (UG/L)		DET'N LIMIT = 0.010 GUIDELINE = 1.000 (A1)
JAN	BDL	BDL
FEB	BDL	BDL
	.060	.040 <T
MAR	.050 <T	BDL
APR	BDL	BDL
MAY	BDL	BDL
JUN	BDL	BDL
JUL	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	.040 <T	.050 <T
MANGANESE (UG/L)		DET'N LIMIT = .050 GUIDELINE = 50.0 (A3)
JAN	1.200	.380 <T
FEB	1.700	.700
	1.600	.570
MAR	1.900	.610
APR	1.700	.820
MAY	2.400	.770
JUN	2.700	.800

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
MOLYBDENUM (UG/L)			DET'N LIMIT = 0.020 GUIDELINE = N/A
JAN	.480 <T	.470 <T	
FEB	.510	.430 <T	
	.860	.770	
MAR	.710	.700	
APR	.650	.680	
MAY	.650	.720	
JUN	.960	.950	
JUL	ISN	.880	
AUG	.700	.690	
SEP	.770	.770	
OCT	.570	.510	
NOV	.400 <T	.440 <T	
DEC	.430 <T	.420 <T	
NICKEL (UG/L)			DET'N LIMIT = 0.100 GUIDELINE = 50. (F3)
JAN	.960 <T	.830 <T	
FEB	BDL	BDL	
	1.300 <T	1.000 <T	
MAR	.160 <T	.370 <T	
APR	.530 <T	.330 <T	
MAY	.360 <T	.350 <T	
JUN	.610 <T	.640 <T	
JUL	ISN	1.100 <T	
AUG	.660 <T	.780 <T	
SEP	1.200 <T	1.100 <T	
OCT	.220 <T	BDL	
NOV	.960 <T	.820 <T	
DEC	BDL	.380 <T	
LEAD (UG/L)			DET'N LIMIT = 0.050 GUIDELINE = 50. (A1)
JAN	.170 <T	.070 <T	
FEB	.110 <T	.100 <T	
	1.300	.410	
MAR	.400	.050 <T	
APR	.730	.110 <T	
MAY	.420	.380	
JUN	.250	.050 <T	
JUL	ISN	.410	
AUG	.660	.510	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
SEP	.300	.310
OCT	.700	.140 <T
NOV	.190 <T	.080 <T
DEC	.690	.120 <T
ANTIMONY (UG/L)		DET'N LIMIT = .050 GUIDELINE = 146. (D4)
JAN	.390	.300
FEB	.430	.390
	.730	.700
MAR	.450	.420
APR	.530	.580
MAY	.730	.690
JUN	1.100	.910
JUL	ISM	.800
AUG	.570	.660
SEP	.800	.610
OCT	.500	.430
NOV	.300	.340
DEC	.480 <T	.440 <T
SELENIUM (UG/L)		DET'N LIMIT = 0.200 GUIDELINE = 10. (A1)
JAN	.510 <T	.940 <T
FEB	.770 <T	1.300 <T
	4.600 <T	1.700 <T
MAR	1.700 <T	2.800 <T
APR	3.200 <T	4.300 <T
MAY	.320 <T	1.100 <T
JUN	3.100 <T	3.500 <T
JUL	ISM	5.000 <T
AUG	1.100 <T	1.800 <T
SEP	2.700 <T	BDL
OCT	BDL	1.100 <T
NOV	BDL	1.200 <T
DEC	BDL	BDL
STRONTIUM (UG/L)		DET'N LIMIT = .050 GUIDELINE = N/A
JAN	97.000	95.000
FEB	99.000	97.000
	97.000	99.000
MAR	99.000	110.000
APR	94.000	92.000
MAY	100.000	100.000
JUN	110.000	110.000
JUL	ISM	110.000
AUG	100.000	110.000
SEP	110.000	100.000
OCT	100.000	110.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
NOV	94.000	97.000	
DEC	100.000	100.000	
TITANIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A
JAN	3.200	2.200	
FEB	4.200	3.800	
	8.300	7.300	
MAR	6.300	5.100	
APR	6.400	6.500	
MAY	6.100	5.400	
JUN	7.600	6.200	
JUL	ISM	6.000	
AUG	3.900	2.600	
SEP	4.400	3.500	
OCT	3.500	2.300	
NOV	2.500	2.400	
DEC	3.600 <T	2.600 <T	
THALLIUM (UG/L)			DET'N LIMIT = .010 GUIDELINE = 13. (D4)
JAN	BDL	BDL	
FEB	.070 <T	BDL	
	BDL	BDL	
MAR	.030 <T	.030 <T	
APR	.160 <T	.060 <T	
MAY	.050 <T	BDL	
JUN	.070 <T	.080 <T	
JUL	ISM	BDL	
AUG	BDL	BDL	
SEP	BDL	.060 <T	
OCT	BDL	BDL	
NOV	BDL	BDL	
DEC	BDL	BDL	
URANIUM (UG/L)			DET'N LIMIT = .020 GUIDELINE = 100.(81)
JAN	.190 <T	.050 <T	
FEB	.240	.110 <T	
	.430	.250	
MAR	.370	.170 <T	
APR	.330	.090 <T	
MAY	.340	.180 <T	
JUN	.380	.130 <T	
JUL	ISM	.250	
AUG	.280	.110 <T	
SEP	.40	.140 <T	
OCT	.10	.070 <T	
NOV	.190 <T	.050 <T	
DEC	.250 <T	.060 <T	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT	
	RAW	TREATED
VANADIUM (UG/L)		
JAN	.300 <T	.260 <T
FEB	.140 <T	.090 <T
	.340 <T	.230 <T
MAR	.260 <T	.180 <T
APR	.230 <T	.210 <T
MAY	.300 <T	.230 <T
JUN	.410 <T	.280 <T
JUL	ISN	.270 <T
AUG	.410 <T	.240 <T
SEP	.350 <T	.220 <T
OCT	.360 <T	.220 <T
NOV	.270 <T	.150 <T
DEC	.270 <T	.180 <T
ZINC (UG/L)		
JAN	1.200	1.800
FEB	1.100	2.300
	4.200	2.800
MAR	1.900	2.200
APR	1.700	2.200
MAY	2.500	3.800
JUN	2.100	2.600
JUL	ISN	3.300
AUG	1.400	2.200
SEP	1.500	1.800
OCT	6.600	1.700
NOV	4.300	2.000
DEC	5.300	2.600

DISTRIBUTION SYSTEM

DET'N LIMIT = .050 GUIDELINE = N/A

DET'N LIMIT = .001 GUIDELINE = 5000. (A3)

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
CHLOROAROMATICS			
HEXACHLOROBUTADIENE (NG/L)		DET'N LIMIT = 1.000	GUIDELINE = 450 (D4)
JAN	BDL	BDL	
FEB	BDL	BDL	
	BDL	BDL	
MAR	BDL	BDL	
APR	IPE	IPE	
MAY	BDL	BDL	
JUN	BDL	BDL	
JUL	BDL	1.000 <T	
AUG	ILA	BDL	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	BDL	BDL	
DEC	BDL	BDL	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
PESTICIDES & PCB			
ALPHA BHC (NG/L)		DET'N LIMIT = 1.000	GUIDELINE = 700 (G)
JAN	2.000 <T	BDL	
FEB	1.000 <T	1.000 <T	
	1.000 <T	BDL	
MAR	2.000 <T	1.000 <T	
APR	IPE	IPE	
MAY	1.000 <T	2.000 <T	
JUN	1.000 <T	1.000 <T	
JUL	3.000 <T	2.000 <T	
AUG	ILA	2.000 <T	
SEP	1.000 <T	1.000 <T	
OCT	BDL	BDL	
NOV	2.000 <T	1.000 <T	
DEC	2.000 <T	2.000 <T	
BETA BHC (NG/L)		DET'N LIMIT = 1.000	GUIDELINE = 300 (G)
JAN	BDL	BDL	
FEB	BDL	BDL	
	BDL	BDL	
MAR	BDL	BDL	
APR	IPE	IPE	
MAY	BDL	2.000 <T	
JUN	BDL	BDL	
JUL	BDL	BDL	
AUG	ILA	BDL	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	BDL	BDL	
DEC	BDL	BDL	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
PHENOLICS (UG/L)	PHENOLICS	DET'N LIMIT = 0.2	GUIDELINE = 2.00 (A3)
JAN	1.000	.800	
FEB	1.600	1.200	
	.600	BDL	
MAR	.800 <T	.600 <T	
APR	.800 <T	.600 <T	
MAY	1.200	.600 <T	
JUN	1.000	1.400	
JUL	4.800	.600 <T	
AUG	1.000 <T	.600 <T	
SEP	1.200	.600 <T	
OCT	2.200	1.000 <T	
NOV	BDL	BDL	
DEC	6.600	3.000	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW		TREATED	
VOLATILES				
BENZENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 5.0 (B1)
JAN	.250	<T	.450	<T
FEB	2.700		1.550	
	.250	<T	.250	<T
MAR	.050	<T	.150	<T
APR	.300	<T	.250	<T
MAY	.100	<T	.100	<T
JUN	BDL		.100	<T
JUL	.100	<T	.050	<T
AUG	.050	<T	.100	<T
SEP	BDL		.050	<T
OCT	BDL		.050	<T
NOV	BDL		.050	<T
DEC	BDL		.200	<T
TOLUENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 24.0 (B4)
JAN	BDL		BDL	
FEB	.050	<T	.200	<T
	BDL		BDL	
MAR	BDL		.100	<T
APR	BDL		.050	<T
MAY	.100	<T	.100	<T
JUN	.050	<T	.100	<T
JUL	.150	<T	.200	<T
AUG	BDL		.200	<T
SEP	BDL		.100	<T
OCT	.100	<T	BDL	
NOV	BDL		.050	<T
DEC	BDL		.200	<T
ETHYLBENZENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 2.4 (B4)
JAN	BDL		.050	<T
FEB	.050	<T	.050	<T
	.050	<T	.050	<T
MAR	.050	<T	.100	<T
APR	.050	<T	.050	<T
MAY	BDL		.050	<T
JUN	.050	<T	.050	<T
JUL	BDL		.050	<T
AUG	BDL		BDL	
SEP	BDL		BDL	
OCT	BDL		BDL	
NOV	BDL		BDL	
DEC	BDL		BDL	
M-XYLENE (UG/L)				DET'N LIMIT = .100 GUIDELINE = 300 (B4)
JAN	BDL		BDL	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MALPOLE ISLAND WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
FEB	BDL	.200 <T
	BDL	BDL
MAR	.100 <T	.200 <T
APR	BDL	BDL
MAY	.100 <T	BDL
JUN	BDL	BDL
JUL	.200 <T	.100 <T
AUG	BDL	.100 <T
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	.200 <T

O-XYLENE (UG/L) DET'N LIMIT = .050 GUIDELINE = 300 (B4)

JAN	BDL	BDL
FEB	.050 <T	.100 <T
	.050 <T	BDL
MAR	.100 <T	.150 <T
APR	BDL	BDL
MAY	.100 <T	.050 <T
JUN	.050 <T	.050 <T
JUL	.100 <T	.100 <T
AUG	BDL	.050 <T
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	.100 <T

STYRENE (UG/L) DET'N LIMIT = .050 GUIDELINE = 46.5 (D2)

JAN	BDL	BDL
FEB	.050 <T	BDL
	BDL	BDL
MAR	BDL	BDL
APR	.200 <T	BDL
MAY	.050 <T	BDL
JUN	.150 <T	BDL
JUL	.050 <T	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	.100 <T	.050 <T
NOV	BDL	.100 <T
DEC	.100 <T	BDL

CHLOROFORM (UG/L) DET'N LIMIT = .100 GUIDELINE = 350 (A1+)

JAN	.200 <T	18.200
FEB	BDL	8.500
	BDL	4.100

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
MAR	1.000	13.200
APR	BDL	18.200
MAY	BDL	10.300
JUN	BDL	13.300
JUL	1.900	24.100
AUG	BDL	28.000
SEP	BDL	23.000
OCT	BDL	13.300
NOV	BDL	8.700
DEC	BDL	14.400

111, TRICHLOROETHANE (UG/L) DET'N LIMIT = .020 GUIDELINE = 200 (D1)

JAN	BDL	BDL
FEB	BDL	BDL
	BDL	BDL
MAR	.060 <T	BDL
APR	BDL	BDL
MAY	.020 <T	BDL
JUN	BDL	BDL
JUL	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL

DICHLOROBROMOMETHANE (UG/L) DET'N LIMIT = .050 GUIDELINE = 350 (A1+)

JAN	BDL	8.150
FEB	BDL	9.000
	BDL	5.250
MAR	BDL	8.300
APR	BDL	12.450
MAY	BDL	10.100
JUN	BDL	7.350
JUL	.200 <T	15.600
AUG	BDL	11.100
SEP	BDL	9.600
OCT	BDL	11.100
NOV	BDL	8.550
DEC	BDL	10.600

CHLORODIBROMOMETHANE (UG/L) DET'N LIMIT = .100 GUIDELINE = 350 (A1+)

JAN	BDL	4.000
FEB	BDL	7.500
	BDL	5.700
MAR	BDL	4.800
APR	BDL	8.900

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM
	RAW	TREATED	
MAY	BDL	9.500	
JUN	BDL	3.500	
JUL	BDL	10.000	
AUG	BDL	4.900	
SEP	BDL	4.700	
OCT	BDL	8.300	
NOV	BDL	7.800	
DEC	BDL	6.900	
T-CHLOROETHYLENE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 10.0 (C2)
JAN	BDL	BDL	
FEB	BDL	BDL	
	BDL	BDL	
MAR	BDL	.050 <T	
APR	BDL	BDL	
MAY	BDL	BDL	
JUN	BDL	.100 <T	
JUL	BDL	.050 <T	
AUG	.050 <T	.100 <T	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	BDL	BDL	
DEC	BDL	BDL	
BROMOFORM (UG/L)			DET'N LIMIT = .200 GUIDELINE = 350 (A1+)
JAN	BDL	.400 <T	
FEB	BDL	1.400 <T	
	BDL	1.600 <T	
MAR	BDL	.600 <T	
APR	BDL	1.400 <T	
MAY	BDL	1.200 <T	
JUN	BDL	.400 <T	
JUL	BDL	1.800 <T	
AUG	BDL	.600 <T	
SEP	BDL	.600 <T	
OCT	BDL	1.200 <T	
NOV	BDL	2.000 <T	
DEC	BDL	1.200 <T	
1,4 DICHLOROBENZENE (UG/L)			DET'N LIMIT = .100 GUIDELINE = 5.0 (B1)
JAN	BDL	BDL	
FEB	BDL	BDL	
	BDL	BDL	
MAR	BDL	BDL	
APR	BDL	BDL	
MAY	BDL	BDL	
JUN	BDL	.100 <T	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM WALPOLE ISLAND WTP 1989

WATER TREATMENT PLANT — DISTRIBUTION SYSTEM

	RAW	TREATED
JUL	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL

1,2 DICHLOROBENZENE (UG/L) — DET'N LIMIT = .050 GUIDELINE = 200 (B1)

JAN	BDL	BDL
FEB	BDL	BDL
	BDL	BDL
MAR	BDL	BDL
APR	BDL	BDL
MAY	BDL	BDL
JUN	BDL	.050 <T
JUL	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL

TOTL TRIHALOMETHANES (UG/L) — DET'N LIMIT = .500 GUIDELINE = 350 (A1)

JAN	BDL	30.750
FEB	BDL	26.400
	BDL	16.650
MAR	BDL	26.900
APR	BDL	40.950
MAY	BDL	31.100
JUN	BDL	24.550
JUL	2.100 <T	51.500
AUG	BDL	44.600
SEP	BDL	37.900
OCT	BDL	33.900
NOV	BDL	27.050
DEC	BDL	33.100

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML(A1)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL(A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	2000. (B4)
PENTACHLOROPHENOL	NG/L	50.	30000. (B4)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5(A4)
FIELD TEMPERATURE	°C	N/A	<15 °C(A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500(A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20(A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100(A4)
MAGNESIUM	MG/L	.05	30. (F2)
SODIUM	MG/L	.20	200. (C3)
AMMONIUM TOTAL	MG/L	.002	.05(F2)
SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40(F2)
SULPHATE	MG/L	.200	500. (A3)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)

ANTIMONY	UG/L	.050	10.	(F3)
ARSENIC	UG/L	.050	50.	(A1)
BARIUM	UG/L	.020	1000.	(A1)
BORON	UG/L	.200	5000.	(A1)
BERYLLIUM	UG/L	.010	0.20	(H)
CADMIUM	UG/L	.050	5.0	(A1)
COBALT	UG/L	.020	1000.	(H)
CHROMIUM	UG/L	.100	50.	(A1)
COPPER	UG/L	.100	1000.	(A3)
IRON	UG/L	5.0	300.	(A3)
MERCURY	UG/L	.01	1.0	(A1)
MANGANESE	UG/L	.050	50.	(A3)
MOLYBDENUM	UG/L	.020	500.	(H)
NICKEL	UG/L	.100	50.	(F3)
LEAD	UG/L	.020	50.	(A1)
SELENIUM	UG/L	.200	10.	(A1)
SILVER	UG/L	.020	50.	(A1)
STRONTIUM	UG/L	.100	2000.	(H)
THALLIUM	UG/L	.010	13.	(D4)
TITANIUM	UG/L	.100	N/A	
URANIUM	UG/L	.020	20.	(A2)
VANADIUM	UG/L	.020	100.	(H)
ZINC	UG/L	.020	5000.	(A3)

PHENOLICS

PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0	(A3)

PESTICIDES & PCB

ALDRIN	NG/L	1.0	700.	(A1)
AMETRINE	NG/L	50.	300000.	(D3)
ATRAZINE	NG/L	50.	60000.	(B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700.	(G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300.	(G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000.	(A1)
ALPHA CHLORDANE	NG/L	2.0	7000.	(A1)
GAMMA CHLORDANE	NG/L	2.0	7000.	(A1)
BLADEX	NG/L	100.	10000.	(B3)
DIELDRIN	NG/L	2.0	700.	(A1)
METHOXYCHLOR	NG/L	5.0	900000.	(B1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000.	(D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000.	(D4)
ENDRIN	NG/L	4.0	200.	(A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A	

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
HEPTACHLOR EPOXIDE	NG/L	1.0	3000.	(A1)
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)

POLYAROMATIC HYDROCARBONS

PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0		N/A
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	

PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	

SPECIFIC PESTICIDES

TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	200000.	(B4)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	120000.	(B1)
PICLORAM	NG/L	100.	190000.	(B3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	20000.	(B1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION(AZINPHOSMETHYL)	NG/L	N/A	20000.	(B1)
MALATHION	NG/L	20.	190000.	(B1)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(A1)
METHYLTRITHION	NG/L	20.	N/A	

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
PARATHION	NG/L	20.	50000.	(B1)
PHORATE (THIMET)	NG/L	20.	2000.	(B3)
RELDAN	NG/L	20.	N/A	
RONNEL	NG/L	20.	N/A	
AMINOCARB	NG/L	N/A	N/A	
BENOMYL	NG/L	N/A	N/A	
BUX (METALKAMATE)	NG/L	2000.	N/A	
CARBOFURAN	NG/L	2000.	90000.	(B1)
CICP (CHLORPROPHAM)	NG/L	2000.	350000.	(G)
DIALLATE	NG/L	2000.	30000.	(H)
EPTAM	NG/L	2000.	N/A	
IPC	NG/L	2000.	N/A	
PROPOXUR (BAYGON)	NG/L	2000.	90000.	(G)
SEVIN (CARBARYL)	NG/L	200.	90000.	(B1)
SUTAN (BUTYLATE)	NG/L	2000.	245000.	(D3)

VOLATILES

BENZENE	UG/L	.050	5.0	(B1)
TOLUENE	UG/L	.050	24.0	(B4)
ETHYLBENZENE	UG/L	.050	2.4	(B4)
PARA-XYLENE	UG/L	.100	300.	(B4)
META-XYLENE	UG/L	.100	300.	(B4)
ORTHO-XYLENE	UG/L	.050	300.	(B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0	(D1)
ETHLYENE DIBROMIDE	UG/L	.05	.05	G)
METHYLENE CHLORIDE	UG/L	.500	50.	(B1)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	70.	(D5)
1,1-DICHLOROETHANE	UG/L	.100	N/A	
CHLOROFORM	UG/L	.100	350.	(A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200.	(D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0	(D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0	(B1)
1,2-DICHLOROPROPANE	UG/L	.050	6.0	(D5)
TRICHLOROETHYLENE	UG/L	.100	50.	(B1)
DICHLOROBROMOMETHANE	UG/L	.050	350.	(A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60	(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350.	(A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0	(C2)
BROMOFORM	UG/L	.200	350.	(A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17	(D4)
CHLOROBENZENE	UG/L	.100	60.	(D5)
1,4-DICHLOROBENZENE	UG/L	.100	1.0	(B4)
1,3-DICHLOROBENZENE	UG/L	.100	130.	(G)

1,2-DICHLOROBENZENE	UG/L	.050	3.0	(B4)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A	
TOTAL TRIHALOMETHANES	UG/L	.500	350.	(A1)
STYRENE	UG/L	.05	140.	(D5)